Kielce University of Technology

FACULTY OF MANAGEMENT AND COMPUTER MODELLING

MODULE DESCRIPTION

Module code	full-time studies:	**Z-ZIP1-E-203**
	part-time studies:	**Z-ZIPN1-E-203**
Module name	**Financial Mathematics**	
Module name in Polish	**Matematyka finansowa**	
Valid from academic year	**2019/2020**	

MODULE PLACEMENT IN THE SYLLABUS

Field of study	**MANAGEMENT AND PRODUCTION ENGINEERING**
Level of education	**1st degree**
Studies profile	**General**
Form and method of conducting classes	**Full-time and Part-time**
Specialisation	**All**
Unit conducting the module	**Department of Mathematics and Physics**
Module co-ordinator	**Krzysztof Grysa, PhD, DSc, ProfTit**
Approved by:	**Dariusz Bojczuk, PhD, DSc**

MODULE OVERVIEW

Type of subject / group of subjects	**Basic**
Module status	**Compulsory**
Language of conducting classes	**English**
Module placement in the syllabus - semester	**Semester II**
Initial requirements	**No requirements**
Examination (YES/NO)	**NO**
Number of ECTS credit points	**2**

Method of conducting classes		**Lecture**	**Classes**	**Laboratory**	**Project**	**Other**
Per semester	full-time studies:	**15**	**15**			
	part-time studies:	**9**	**9**			

TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Category	Symbol	Learning outcomes	Assignations to the directional learning outcomes
Knowledge	W01	A student has knowledge as regards time-related financial operations; in addition, a student knows such notions as: the rate of return, simple and compound interest, and a bill of exchange.	ZIP1_W01
	W02	A student has knowledge as string payments and managing them, calculating their value at any period of time.	ZIP1_W01
Skills	U01	A student can compare deposit interests in terms of their profitability and is able to calculate present and future value of string payments.	ZIP1_U12
	U02	A student is able to analyse credit profitability individually and analyse simple string annuities.	ZIP1_U12
Social competences	K01	A student understands the necessity of continuous improvement of his/her knowledge as regards financial mathematics.	ZIP1_K01
	K02	A student is ready to co-operate, communicate effectively, and act ethically as regards financial operations.	ZIP1_K04

TEACHING CONTENTS

Method of conducting classes	Teaching contents
Lecture	Simple interest, simple discounting, interest in advance. Bills of exchange. T-bills. Compound interest, continuously compounded rate. Periodic investment and string payments. Instalments – credit repayment. Credits with additional charge, with a delayed payment period. Rents, Internal Rate of Return (IRR). Net Present Value (NPV).
Classes	Simple interest, simple discounting, interest in advance. Bills of exchange. T-bills. Compound interest, continuously compounded rate. Periodic investment and string payments. Instalments – credit repayment. Credits with additional charge, with a delayed payment period. Rents, Internal Rate of Return (IRR). Net Present Value (NPV).

METODS OF ASSESSING TEACHING RESULTS

Symbol	Methods of checking the learning outcomes *(select X)*					
	Oral exam	Written exam	Test	Project	Statement	Other
W01			X			X
W02			X			X
U01			X			X
U02			X			X
K01						X
K02						X

FORM AND CONDITIONS OF PASSING

Form of classes	Form of credit	Passing conditions
Lecture	Credit with grade	Completion of exercises.
Classes	Credit with grade	Obtaining at least 50% of the points from tests and individual work during classes.

STUDENT WORKLOAD

Balance of ECTS points													
No.	Type of student's activity	Student's workload										Unit
		full-time					part-time					
		Lc	C	Lb	P	O	Lc	C	Lb	P	O	
1.	Participation in the activities	15	15				9	9				h
2.	Other (consultation, exam)	2	2				2	2				h
3.	**Number of hours of a student's assisted work**	**34**					**22**					h
4.	**Number of ECTS credit points which are allocated for assisted work**	**1,4**					**0,9**					ECTS
5.	**Number of hours of a student's unassisted work**	**16**					**28**					h
6.	**Number of ECTS credit points which a student receives for unassisted work**	**0,6**					**1,1**					ECTS
7.	**Work input connected with practical classes**	**25**					**25**					h
8.	**Number of ECTS credit points which a student receives for practical classes**	**1,0**					**1,0**					ECTS
9.	**Total number of hours of a student's work**	**50**					**50**					h
10.	**Punkty ECTS za moduł** *1 ECTS=25 hours*	**2**										ECTS

LITERATURE

1. Mitsel A.A. (2012), *Basics of Financial Mathematics. A study guide*, Ministry Of Education And Science Of The Russian Federation, Federal State-Funded Educational Institution of Higher Vocational Education «National Research Tomsk Polytechnic University», Department of Higher Mathematics and Mathematical Physics (https://portal.tpu.ru/SHARED/l/LEVCHENKOEA/eng/academic/prof_eng_en/Uchebnoe_posobie.pdf)
2. Department of Decision Sciences (2012), *Introductory Financial Mathematics,* University of South Africa (https://gimmenotes.co.za/wp-content/uploads/filebase/introductory_financial_mathematics_dsc1630/Study-guide.pdf)

3. Horst U. (2018), *Introduction to Mathematical Finance*, Department of Mathematics Humboldt, University Berlin (https://www.applied-financial-mathematics.de/sites/default/files/main-student.pdf)