Course description

Department/Unit /	KEM / AFIPV			**Academic Year**	2023/2024
Title	Computations in Finance and Insurance			**Type of completion**	Exam
Long Title	Computations in Finance and Insurance in English				
Accredited/Credits	Yes, 4 Cred.			**Type of completion**	Written
Number of hours	Lecture 2 [Hours/Week] Tutorial 1 [Hours/Week]				
Occ/max	Status A	Status B	Status C	**Course credit prior to**	Yes
Summer semester	0 / -	0 / -	1 / -	**Counted into average**	YES
Winter semester	0 / -	0 / -	0 / -	**Min. (B+C) students**	10
Timetable	Yes			**Repeated registration**	NO
Language of instruction	English			**Semester taught**	Summer semester
Optional course	Yes			**Internship duration**	0
Evaluation scale	1|2|3|4			**Ev. sc. – cred.**	S|N
No. of hours of on-premise					
Auto acc. of credit	Yes in the case of a previous evaluation 4 nebo nic.				
Periodicity	every year				
Specification periodicity					
Substituted course	KSO/AFIPV				
Preclusive courses	KEM/FIPV1				
Prerequisite courses	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	N/A				

Course objectives:

The aim of this course is to: introduce students to the basic concepts and used quantity in financial calculations, explain and present to students practical application of different interest types for calculations. Demonstrate to students the principle of time value of money and practical usage. Introduce students to different type of annuities and present the practical usage of calculations on examples. Demonstrate to students the principles of yield of investments calculations with the help of effective interest rate. Explain to students the process of project evaluation and demonstrate the usage of different evaluative criteria and their calculations. Present to students the usage of financial calculations in insurance systems for calculation different type of insurance rate.

Requirements on student

Content, organization and requirements for credits of practice:
Requirements are published in LMS Moodle (http://moodle.fek.zcu.cz).
1. Registration to the LMS Moodle and enroll to course FIPV1.
2. Fulfillment of all quizes to deadline.
3. Presentation of example according to scheduling.
4 Seminary assignment elaboration.
5. Participation on final test.
6. Overall assessment of all study activities minimally 90 % incl.
Students can take part in only one final test and in one corrective test.

Content, organization and requirements for exam:
Students can pass examination paper after credits grand.
Written exam consists of calculations of exercises from lectures, practice and LMS Moodle. Exam consists of four tasks. Some of them have more parts.
Exam classification:
Percentage Classification: 90-100 = A, 70-89 = B, 50-69 = C, 0-49 = Fall.

Content

The introduce to course.
Simple interest, simple discount, time value of money.
Compound interest, compound discount, other type of interest.
Annuities. Ordinary annuity.
General annuities and other annuities.
Amortization.
Projects evaluation.
Products of short-term markets.
Insurance calculations.

Fields of study

e-learning (Moodle)

Guarantors and lecturers

- **Guarantors:** doc. RNDr. Mikuláš Gangur, Ph.D. (100%)
- **Lecturer:** doc. RNDr. Mikuláš Gangur, Ph.D. (100%)
- **Tutorial lecturer:** doc. RNDr. Mikuláš Gangur, Ph.D. (100%)

Literature

- **Basic:** Radová, Jarmila; Dvořák, Petr,; Málek, Jiří. *Finanční matematika pro každého*. 7., aktualiz. vyd. Praha : Grada, 2009. ISBN 978-80-247-3291-6.
- **Basic:** CIPRA, T. *Praktický průvodce finanční a pojistnou matematikou*. Praha : Ekopress, 2005. ISBN 80-86119-91-2.
- **Basic:** ZIMA, P., BROWN, R. L. *Shaum's outline of theory and problems of mathematics of finance*. 2nd ed. New York : McGraw-Hill, 1996. ISBN 0-07-008203-0.
- **Extending:** GROB, H. L., EVERDING, D. *Finanzmathematik mit dem PC*. [1. Aufl.]. Wiesbaden : Gabler, 1992. ISBN 3-409-12900-6.

Time requirements

All forms of study

Activities	Time requirements for activity [h]
E-learning [dáno e-learningovým kurzem]	26
Presentation preparation (report) (1-10)	1
Preparation for an examination (30-60)	30
Preparation for comprehensive test (10-40)	10
Contact hours	39
Total:	**106**

assessment methods

Knowledge - knowledge achieved by taking this course are verified by the following means:

Written exam

Portfolio

Seminar work

Individual presentation at a seminar

Skills - skills achieved by taking this course are verified by the following means:

Written exam

Test

N/A

Competences - competence achieved by taking this course are verified by the following means:

Written exam

Test

N/A

prerequisite

Knowledge - students are expected to possess the following knowledge before the course commences to finish it successfully:

Know commonly used basic mathematical operations, mathematical power, exponential and logarithmic functions.

Understand the solution of power, exponential and logarithmic equations. The advantage is the knowledge of basic iterative methods for determining the root of a nonlinear equation together with the ability of practical application of these basic iterative methods (soil interval, linear interpolation).

Skills - students are expected to possess the following skills before the course commences to finish it successfully:

Use e-learning systém

Apply high school mathematics

Competences - students are expected to possess the following competences before the course commences to finish it successfully:

N/A

teaching methods

Knowledge - the following training methods are used to achieve the required knowledge:

E-learning

Individual study

Students' portfolio

Interactive lecture

Discussion

Skills - the following training methods are used to achieve the required skills:

Interactive lecture

E-learning

Self-study of literature

Competences - the following training methods are used to achieve the required competences:

E-learning

Practicum

Self-study of literature

learning outcomes

Knowledge - knowledge resulting from the course:

Use orientation in the basic calculations calculations and quantitative methods in finance and insurance.

Apply methods and calculations in solving of practical problems in finance and insurance.

Evaluate, compare and select the suitable products of shot-term money market and in the insurance area.

Skills - skills resulting from the course:

Apply basic technics of financial computing.

Calculate interest, pensions, money market instruments.

Construct cash-flow of project and he can evaluate it.

Competences - competences resulting from the course:

N/A

Course is included in study programmes: