

Course description

Course abbreviation:	KMA/MAM2	Page:	1 / 2
Course name:	Management Mathematics 2		
Academic Year:	2023/2024	Printed:	26.05.2024 01:42

Department/Unit /	KMA / MAM2			Academic Year	2023/2024
Title	Management Mathematics 2			Type of completion	Exam
Accredited/Credits	Yes, 4 Cred.			Type of completion	Combined
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 / -	0 / -	Counted into average	YES
Winter semester	0 / -	0 / -	0 / -	Min. (B+C) students	1
Timetable	Yes			Repeated registration	NO
Language of instruction	Czech			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	No				
Periodicity	K				
Substituted course	None				
Preclusive courses	KMA/MAM2A				
Prerequisite courses	N/A				
Informally recommended courses	KMA/MAM1 or KMA/MAM1A				
Courses depending on this Course	N/A				

Course objectives:

The aim of this course is to further develop knowledge of management mathematics.

Requirements on student

written test, oral exam

Content

Mathematical modelling in economy, finance and management. Advanced problems described by non-linear difference and differential equations with constraints. Emphasis on optimal solution.

Non-linear differential equations with delays and their applications.

Continuous-time stochastic finance models.

Advanced applications to financial modelling and risk analysis, building of real application models and their analysis, production processes description, logistics and supply chain management, decision making tools.

Fields of study

Guarantors and lecturers

- **Guarantors:** Doc. Ing. Radek Cibulka, Ph.D. (100%)

Literature

- **Recommended:** Klamka, Jerzy. *Controlability of Dynamical Systems*. Kluwer Academic Publishers, 1991. ISBN 0792308220.

- **Recommended:** Sethi P. Suresh, Thompson Gerald L. *Optimal control theory: applications to management science and economics*. Springer, 2005.
- **Recommended:** Shreve, Steven E. *Stochastic calculus for finance. II, Continuous-time models*. New York : Springer, 2004. ISBN 0-387-40101-6.

Time requirements

All forms of study

Activities	Time requirements for activity [h]
Preparation for an examination (30-60)	40
Individual project (40)	40
Contact hours	39
Total:	119

assessment methods

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

- Oral exam
- Written exam

prerequisite

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

Units which must be passed before this unit may be attempted: KMA/MAM1 or KMA/MAM1A.

teaching methods

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

- Lecture supplemented with a discussion
- Interactive lecture

learning outcomes

Knowledge - knowledge resulting from the course:

- Students taking this course will be able to grasp the problems of management mathematics and namely
- recognize which mathematical optimization tools are appropriate and suitable for modelling given research problem
 - apply these tools to practical management problems
 - solve non-linear problems via abstract methods
 - apply correctly formal and rigorous competency in mathematical presentation, both in written and verbal form.

Course is included in study programmes: